UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,614	02/24/2004	Douglas E. LeCrone	E30-046CON	2946

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ART UNIT	PAPER NUMBER
2113	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>24 February 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-9</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-9</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>24 February 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

       1.☐ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

DETAILED ACTION

The application of LeCrone et al., for a "Method and apparatus for enabling

consistent ancillary disk array storage device operations with respect to a main

application" filed February 24, 2004, has been examined.

Claims 1-9 are presented for examination.

Information disclosed and listed on PTO 1449 has been considered.

Claims 1-9 are rejected under 35 USC § 102.

Double Patenting

Claims 1-7 are rejected on the ground of nonstatutory obviousness-type double

patenting as being unpatentable over claims 1-7 of U.S. Patent No. 6,754,682.

Although the conflicting claims are not identical, they are not patentably distinct from

each other because claims 1, 4, and 7 of the patent includes all of the limitations in

claim 1, 4, and 7 of the instant application. With regard to the additional limitations in

claims 1, 4, and 7 of the patent (e.g., generating a return to the host indicating that the

shift to the second mode has been completed) which are not included in claims 1, 4,

and 7 of the instant application is an obvious expedient since the remaining limitations

in claims 1, 4, and 7 of the patent perform the same function as the limitations in claims

1, 4, and 7 of the instant application (In re Karlson, 136 USPQ 184 (CCPA 1963)).

Claims 2, 5, and 6 of the instant application are identical to claims 2, 5, and 6 of

the patent.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Gagne et

al. (U.S. Patent No. 6,370,626).

As per claim 1, Gagne discloses in a data processing system (Fig. 1, element 10)

including a host (Fig. 1, element 11) and at least one disk array storage device (Fig. 1,

element 14) including a plurality of first logical devices (Fig. 1, elements 34-37) for

interacting with a first application (Fig. 1, element 12) and that constitute a consistency

group and one second logical device (Fig. 1, elements 34-37) that can interact in a first

mode as a mirror for a corresponding first logical device in the consistency group (col. 4,

lines 23-35) a method for enabling the shift of the second logical devices to the second

mode in a consistent manner whereby each second logical device can interact with a

second application (Fig. 1, element 13) with read and write capabilities (col. 4, lines 40-

45) said method for shifting to the second mode comprising the steps of:

A) generating a request data structure for each second logical device (col. 5,

lines 5-18)

B) preventing write operations to any of the first logical devices in the consistency

group (Fig. 5, element 168)

C) initiating a shift all of the identified second logical devices in the consistency

group to the second mode after said disablement (Fig. 5)

D) enabling write operations to all the first logical devices in the consistency

group upon completion of said shifting (Fig. 6, element 194) whereby interactions

between the first application and all the first logical devices in the consistency group

resume and whereby the second application can interact with the second logical

devices in the consistency group (col. 14, lines 14-20).

As per claim 2, Gagne discloses the disk array storage device (Fig. 1, element

14) includes a buffer (Fig. 1, element 20) and a write operation includes a first transfer

of data from a host to the buffer as a write pending entry and a second transfer of the

write pending entry to a logical device and wherein said shifting of a second logical

device to the second mode includes detaching the second logical device from its

corresponding first logical device, attaching the second logical device to the second

application (col. 6, lines 57-61) and managing the transfer of write pending entries in the

buffer (Fig. 3, element 100), said initiation of the shift of the identified second logical

devices including said detaching and attaching steps (col. 6, lines 57-61 and col. 14,

lines 14-20).

As per claim 3, Gagne discloses managing of write pending entry transfers

occurs after said write operations to said first logical devices resume (col. 10, lines 59-

67 through col. 11, lines 1-6) and (Fig. 10A, 10B).

As per claim 4, Gagne discloses in a data processing system (Fig. 1, element 10) including a host (Fig. 1, element 11) and at least one disk array storage device (Fig. 1, element 14) including a plurality of first logical devices (Fig. 1, elements 34-37) for interacting with a first application (Fig. 1, element 12) and that constitute a consistency group and a second logical device (Fig. 1, elements 34-37) that can interact in a first mode as a mirror for each corresponding first logical device in the consistency group (col. 4, lines 23-35) a control means for enabling the shift of the second logical devices to a second mode in a consistent manner whereby each second logical device can interact with a second application (Fig. 1, element 13) with read and write capabilities (col. 4, lines 40-45) said controller comprising:

A) request means for generating a request data structure for second logical device (col. 5, lines 5-18)

B) locking means for preventing write operations to any of the first logical devices in the consistency group (Fig. 5, element 168)

C) mode shift means initiating a shift all of the identified second logical devices in the consistency group to the second mode after said disablement (Fig. 5)

D) unlocking means for enabling write operations to all the first logical devices in the consistency group upon completion of said shifting (Fig. 6, element 194) whereby interactions between the first application and all the first logical devices in the

consistency group resume and whereby the second application can interact with a

second logical device in the consistency group (col. 14, lines 14-20).

As per claim 5, Gagne discloses the disk array storage device (Fig. 1, element

14) includes a buffer (Fig. 1, element 20) and a write operation includes a first transfer

of data from a host to the buffer as a write pending entry and a second transfer of the

write pending entry to a logical device and wherein said shifting of a second logical

device to the second mode includes detaching the second logical device from its

corresponding first logical device, attaching the second logical device to the second

application (col. 6, lines 57-61) and managing the transfer of write pending entries in the

buffer (Fig. 3, element 100) said interaction means enabling the resumption of

interaction between the first application and corresponding first logical devices after the

detaching and attaching of all the identified second logical devices (col. 14, lines 14-20).

As per claim 6, Gagne discloses each of said identified second logical devices

includes means for managing write pending entry transfers after said interaction means

enables the resumption of interactions between the first application and the first logical

devices (col. 10, lines 59-67 through col. 11, lines 1-6) and (Fig. 10A, 10B).

As per claim 7, Gagne discloses a program for operation in a data processing

system (Fig. 1, element 10) including a host (Fig. 1, element 11) and at least one disk

array storage device (Fig. 1, element 14) including a plurality of first logical devices (Fig.

1, elements 34-37) for interacting with a first application (Fig. 1, element 12) and that

constitute a consistency group and one second logical device that can interact in a first

mode as a mirror for a corresponding first logical device in the consistency group (col. 4,

lines 23-35) the program enabling the shift of the second logical devices (Fig. 1,

elements 34-37) to the second mode in a consistent manner whereby each second

logical device can interact with a second application (Fig. 1, element 13) with read and

write capabilities (col. 4, lines 40-45), said program comprising:

A) a module for generating a request data structure for each second logical

device (col. 5, lines 5-18)

B) a module for preventing write operations to any of the first logical devices in

the consistency group (Fig. 5, element 168)

C) a module for initiating a shift all of the identified second logical devices in the

consistency group to the second mode after said disablement (Fig. 5)

D) a module for enabling write operations to all the first logical devices in the

consistency group upon completion of said shifting (Fig. 6, element 194) whereby

interactions between the first application and all the first logical devices in the

consistency group resume and whereby the second application can interact with the

second logical devices in the consistency group (col. 14, lines 14-20).

As per claim 8, Gagne discloses disk array storage device (Fig. 1, element 14)

includes a buffer (Fig. 1, element 20) and a write operation includes a first transfer of

data from a host to the buffer as a write pending entry (Fig. 3, element 100) and a

second transfer of the write pending entry to a logical device and wherein said shift

initiating module detaches the second logical device from its corresponding first logical

device, attaches the second logical device to the second application and a write

pending module manages the transfer of write pending entries in the buffer (col. 14,

lines 14-20).

As per claim 9, Gagne discloses write pending module manages write pending

entry transfers after said write operations to said first logical devices resume (col. 10,

lines 59-67 through col. 11, lines 1-6) and (Fig. 10A, 10B).

Related Prior Art

The following prior art is considered to be pertinent to applicant's invention, but

nor relied upon for claim analysis conducted above.

Schneider et al. (U.S. Patent No. 6,240,527), "Method software and apparatus for

saving using and recovering data".

Litwin et al. (U.S. Patent No. 6,122,754), "Method and system for data recovery

using a distributed and scalable data structure".

Kauffman et al. (U.S. Patent No. 6,199,179), "Method and apparatus for failure

recovery in a multi-processor computer system".

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elmira Mehrmanesh whose telephone number is (571) 272-5531. The examiner can normally be reached on 8-5 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W. Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).